REMARKS

Claims 1 and 5-13 are now pending in the present application. Applicants greatly appreciate the thorough examination of the present application including the indication of allowability for claims 8-11 and 13 and the indication of allowable subject matter in claims 3-7. Clarifying amendments have been made in claim 1 to incorporate the allowable subject matter from dependent claims 2, 3 and 4. As a result, clarifying amendments have been made in dependent claims 5 and 6 to provide proper claim dependency and dependent claims 2-4 are canceled without prejudice or disclaimer to the subject matter contained therein so that claims 1 and 5-7 are now placed in condition for allowance. Clarifying amendments have been made to claim 12 so that this claim may also be placed in condition for allowance. Further clarifying amendments have been made to allowed claims 9, 11 and 13 which are directed to matters of form. Accordingly, reconsideration and allowance of claims 1 and 5-13 in the present application as amended are earnestly solicited in view of the following remarks.

Claims 1, 2 and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,497,006 to Sferlazzo et al. or U.S. Patent No. 6,259,210 to Wells. This rejection is respectfully traversed.

Claim 1 of the present application has been amended to include the limitations of the allowable subject matter from dependent claims 2-4. Accordingly, it is respectfully requested that the rejection to claim 1 be reconsidered and withdrawn as amended claim 1 and its dependent claims 5-7 are now in condition for allowance.

Clarifying amendments have been made to claim 12 to recite the step of controlling the beam current extracted from the ion source by a bias current between the filament and the cathode or a filament current through the filament in response to an error value based on the difference between the sensed beam current and a reference extraction current. The controlling of the beam current allows the indirectly heated cathode ion source to be tuned for maximum beam current transmission. Sferlazzo et al. is directed to an ion source for use in an ion implanter having a cathode 124 and a filament 178 as illustrated in Figs. 2 and 5. Fig. 6 shows a circuit for controlling arc current between the cathode and the chamber walls by providing a feedback signal corresponding to the feedback signal. Wells is directed to a power control apparatus for controlling the power supply of an ion source by a bias supply controller

responsive to a difference between a parameter of the arc power suppply and a demand value of of the parameter to produce a bias power demand signal. However, neither Sferlazzo et al. nor Wells suggest or imply controlling the beam current by a bias current supplied by a bias power supply or a filament current supplied by a filament power supply as recited in amended claim 12 of the present application. Accordingly, it is respectfully submitted that claim 12 patentably defines over Sferlazzo et al. and Wells and it is respectfully requested that the rejection of claim 12 be reconsidered and withdrawn.

In view of these amendments and for all of the above stated reasons, it is respectfully submitted that the outstanding rejection and objection have been overcome. Therefore, it is respectfully requested that claims 1, 5-7 and 12 along with allowed claims 8-11 and 13 of the present application be passed to issue.

If any issues remain unresolved, the Examiner is requested to telephone the undersigned attorney.

Please charge any additional fees or credit any overpayments to deposit account No. 50-0896.

Respectfully submitted,
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